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Costs and benefits of pig feed salmonella control programme in Finland.

Feeding stuffs and their quality play a significant role in the pork supply chain. Feed can be an important route for introduction of pathogens, such as Salmonella, into pigs. Hygienic management of feed is therefore important for animal health and food safety. Finland has adopted a stringent control policy for salmonella in feeds. Finland has adopted a stringent policy to control for Salmonella in animal feed. However, the economic rationale of the policy has not been estimated.

Our aim was to determine the cost and benefits of pig feed Salmonella control programme in Finland. Two options were compared: a) current pig feed salmonella control and b) an alternative where fewer preventive measures were taken and interventions upon detection of Salmonella in feed were more limited than in under the current control policy.

A Monte Carlo simulation model was developed to determine the costs incurred due to preventive measures and due to measures taken to eradicate Salmonella. The data were collected through surveys conducted among feed and livestock sector operators. The model was parametrised to represent current situation and an alternative scenario.

At present, the costs for prevention of Salmonella contaminations in pig feeds were estimated at €1.8-€3.0 million per year. The costs due to feed contamination and the resulting Salmonella infections in pigs and humans were estimated on average at three (0.7-8.7) million euros annually. Thus, the total costs of the current control programme were around to €5 million per year.

In an alternative situation where there was no control of feed-borne *Salmonella*, prevalence in pig feeding stuffs were higher. This would result in an increase in *Salmonella* infections in pigs to up to 12 per cent. According to a reduced control scenario, considerable increase in Salmonella prevalence in the Finnish pig feed could increase Salmonella contaminations in fattening pigs and human infections to 55-fold. When measures to eliminate Salmonella from feed were not carried out, the costs due to preventive actions against Salmonella were estimated at €1.1-€1.8 million per year. Additionally, the costs due to eradication of feed-borne Salmonella from pig farms, consequential measures at slaughterhouses and the health costs to humans could rose to approximately €32.5 million. The results suggest that the present Salmonella controls, including the preventive actions, are cost-effective and generate benefits to the society.